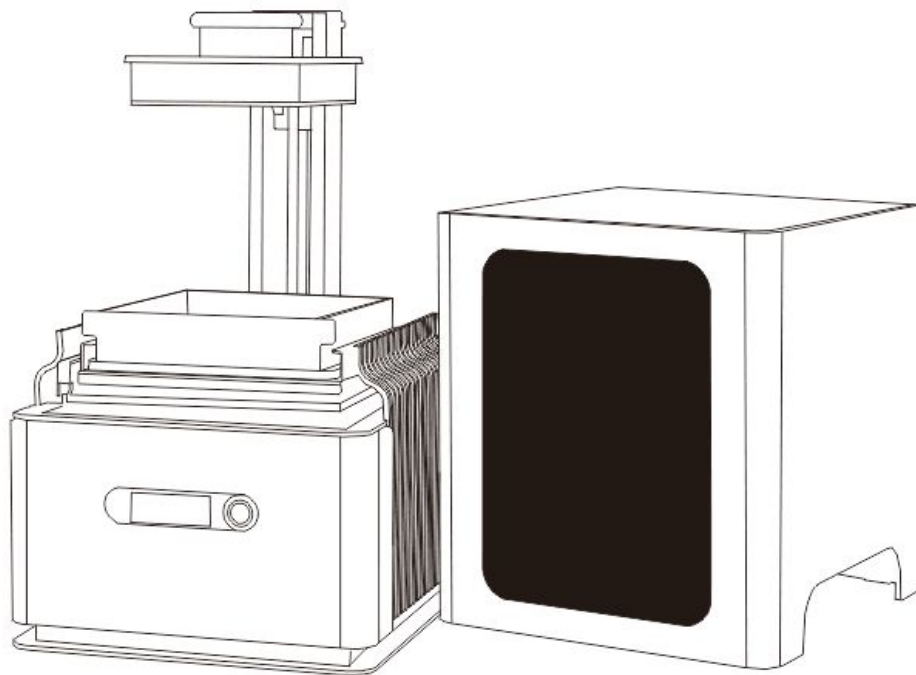


Manual for CTC's Riverside 3D Printer



Company Name: Zhuhai CTC Electronics Co., Ltd

Website: www.ctcprint.com

www.ctc4color.com

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1 Instructions

1.1 Introduction of Instructions

The Instructions include product overview, operating instructions, printing and testing of models, maintenance and trouble shooting. Please read it carefully and use this CTC Riverside 3D printer following this Instructions.

1.2 Notes

1. Upon receipt of this printer, please first check to see whether the component parts of the printer are complete. Then check to see if there is any damaged or broken part in the appearance.

2. A layer of silica gel is on the bottom which contains the resin plate. Please keep in mind that the layer cannot be removed, or it will not be possible to print.

3. The silica gel at the bottom of the resin plate cannot be touched by hand. Please use ethyl alcohol (99.7%) or isopropyl alcohol to clean any debris on its surface.

4. Please be noted to prevent the resin on the sucker from dropping onto the reflective lens below the resin tray during use.

5. Inside the printer there are 4 reflective lens. If any astigmatism or peripheral vision occurs during use, you need to clean the lens with ethyl alcohol (99.7%) or isopropyl alcohol.

6. During use, the resin cannot be long placed in natural light, but should be stored in specialized radiation protection cover.

7. Do not place the printer close to an overly strong magnetic field while printing. Or the printing process will be disturbed.

1.2.1 Safety Instructions

Please do not remove the printer or disconnect power sources when the printer is printing.

Please do not use the printer in strong light.

Please do not print in the sun.

1.2.2 Contact Us

If you want to contact Zhuhai CTC Electronics Co., Ltd for 3D printer post-sale service, please join our corporate group for 3D printing. The group number is 102304634.

For any information on the use and trouble shooting of this 3D printer, you can refer to this Instructions, or join the corporate group mentioned above to obtain online technical support.

Also, you can follow us on Sina Weibo to know about updates on our new technologies and software. Any follower has the opportunity to gain a random reward of a tablet computer. You may log in on to Sina Weibo and search “CTC Electronics—3D Printing the Future”. The more following and forwarding you do, a bigger opportunity you gain to win the prize.

1.3 List of Product Parts

Printer	1 set
Blade	1
Resin glue	500g
Wash basin	1
Power cable	1
Resin plate	1
Tweezers	1 pair
Suckers	1 set

2 Product Catalogue

2.1 Product Overview

CTC's Riverside 3D printer is a rapid prototyping equipment based on the stereo

lithography appearance process (SLA). It is connected to a computer via a USB cable for online printing. So you need only one computer to complete the printing task. With a 3D file in the STL format, you can print any complicated 3D solid model. The device is easy to operate. Even though you have never used a 3D printer before, you can still use this printer to easily print out a variety of models.

2.2 Product Appearance





2.3 Product Specifications

2.3.1 Product Parameters

Total volume of the printer: 2.6liter

Machine size: 300mm×280mm×450mm

Package size: 645mm×495mm×455mm

Weight (outer package included): 14kg

Weight (outer package excluded): 8kg

Scantlings: 125mm×125mm×165mm

Input voltage: 230v/110v

Running power: 1.5A 50-60Hz

Supported operating systems: Windows XP Windows7/8 (32 bits/64 bits)

Printing material: photosensitive resin

Material property: special resin for 3D printing (with exclusively special formula)

Layer accuracy: 0.025mm-0.1mm

Input file type: .stl

2.3.2 Suggested Environment

Operating environment: While in use, the printer should avoid strong light exposure. Make sure little or no dust exists in the surroundings. If the environment shall be changed, please avoid any sharp temperature difference to prevent misty lens.

Storing environment: Store under room temperature and avoid any sharp temperature difference to prevent mist.

3 Operating Instructions

3.1 Unpacking and Preparation Before Printing

Check the appearance of the printer's outer packaging box to see if there is any damage.

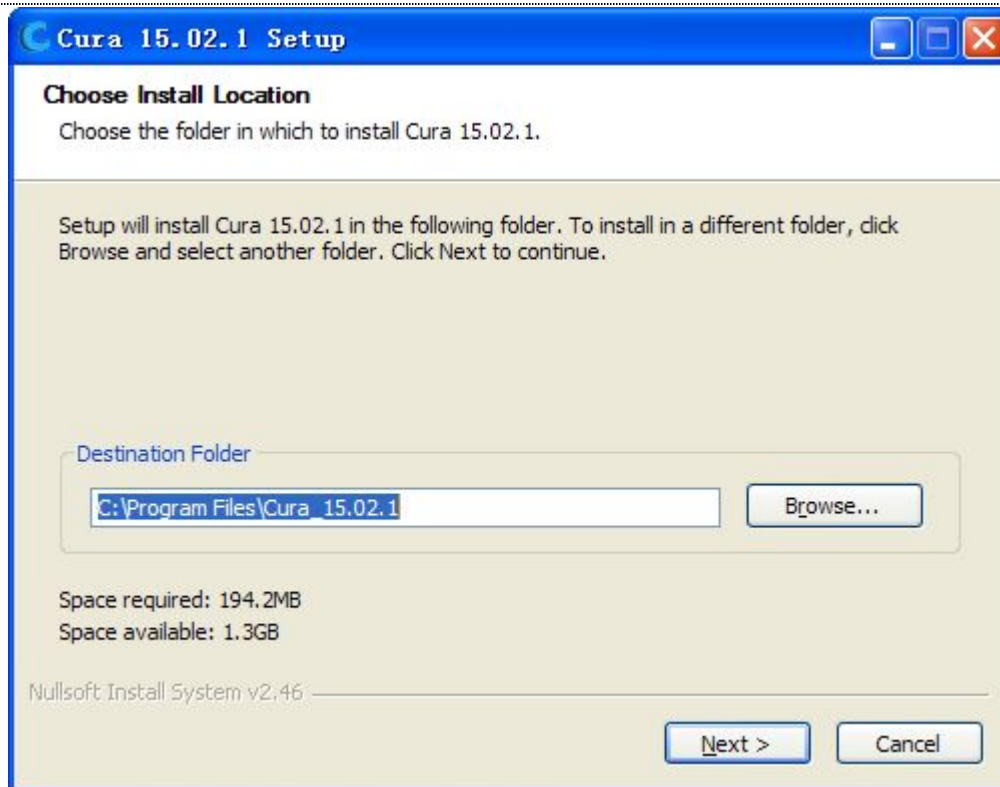
Check the edges and corners of the packaging box to see if there is any compressional deformation or fracture.

3.2 Preparation of Computer

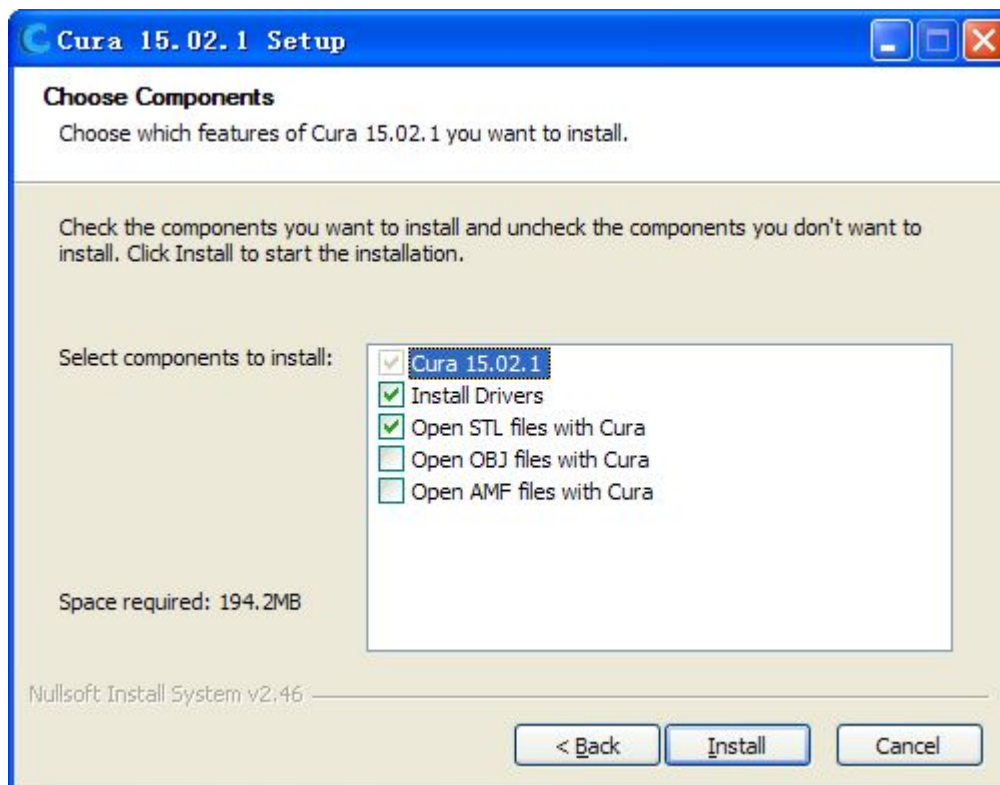
3.2.1 Cura_RIVERSIDE15.02.1 Driver Software Installation

1. Click the file of Cura_RIVERSIDE15.02.1.exe to install CURA. During installation, select any default to install. The process is as follows:

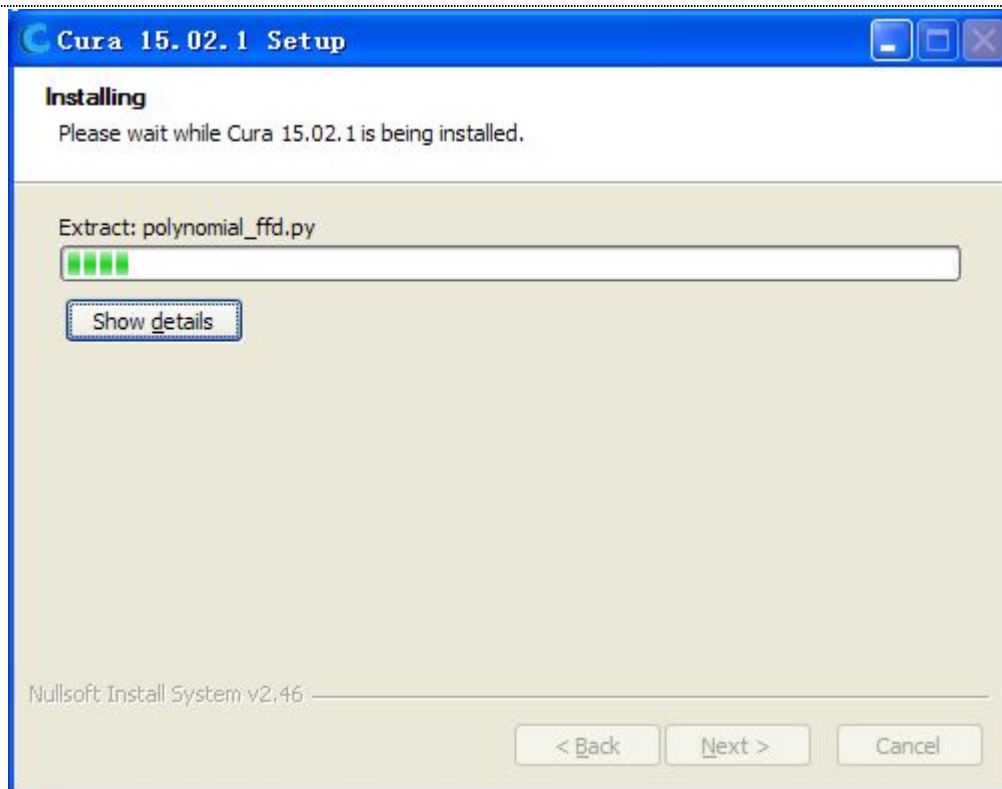
(1) Click "Next"



(2) Click “Install”to start installation



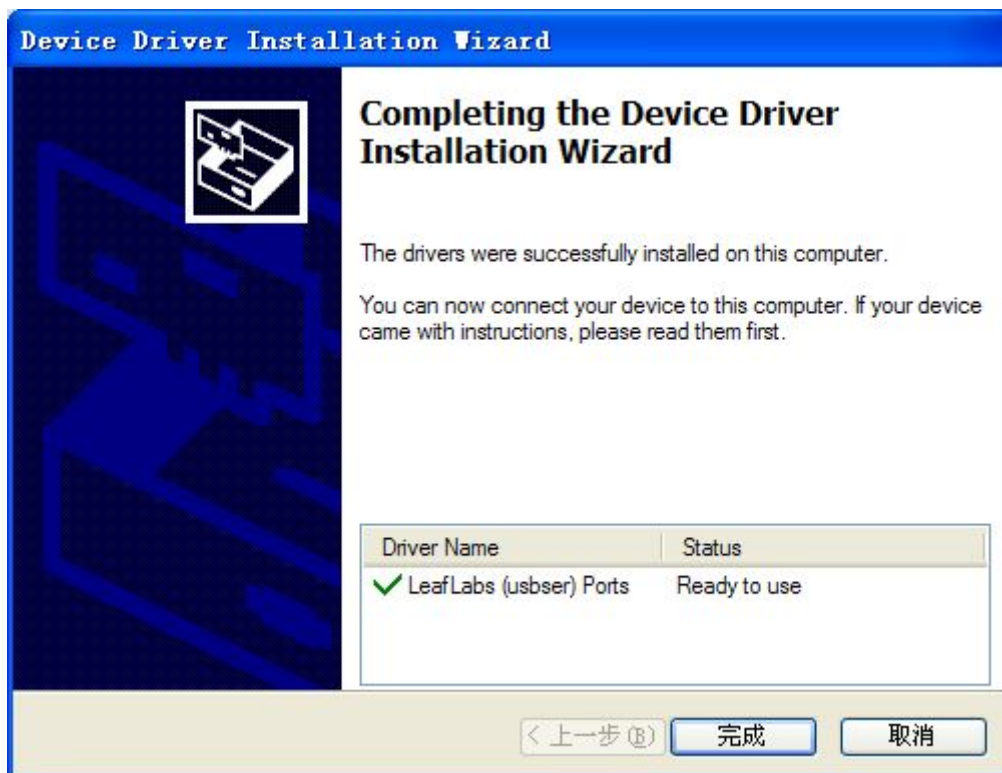
(3) The window below will pop out.



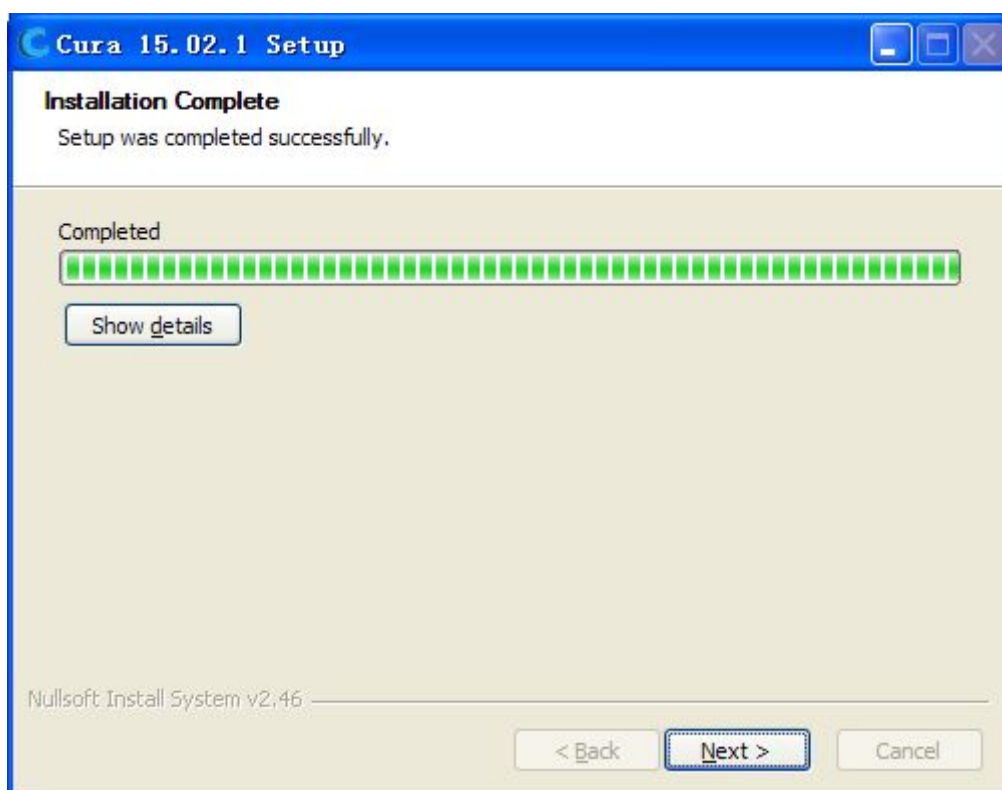
(4) When the process installing, will pop-up Windows install serial port driver, Click"
下一步"



When the serial port driver is completed, the window below will pop out. Click “完成”
to complete the process.



(5) The window below will come back to Cura. Click “Next” to continue.



(6) When the installation is completed, Click “Finish”to complete the process.

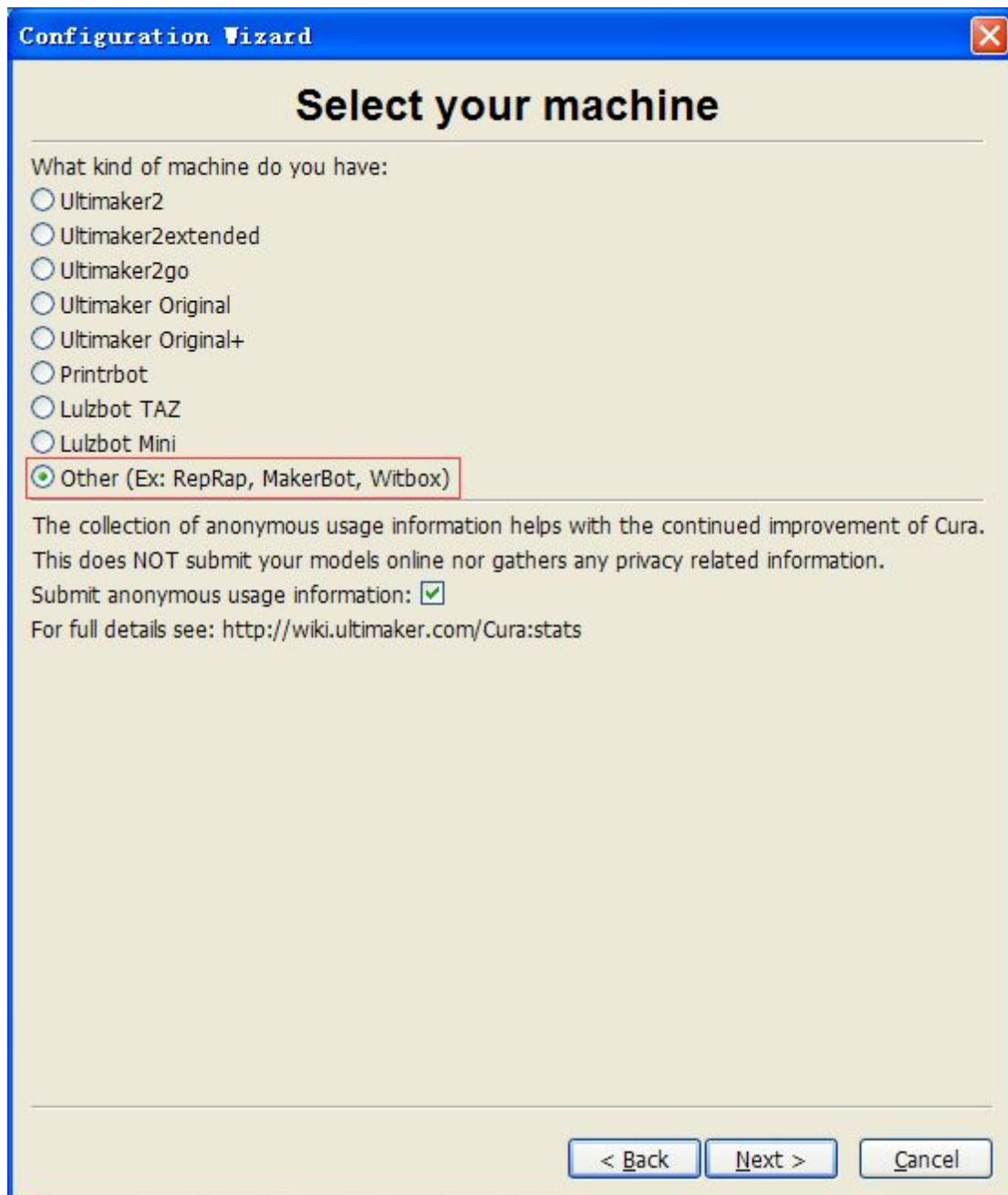


2. When the installation is completed, it needs to set the parameters of the Printer. If it can't pop out window, open the Cura, and select "Machine--Add New Machine" to set the parameters of the Printer.

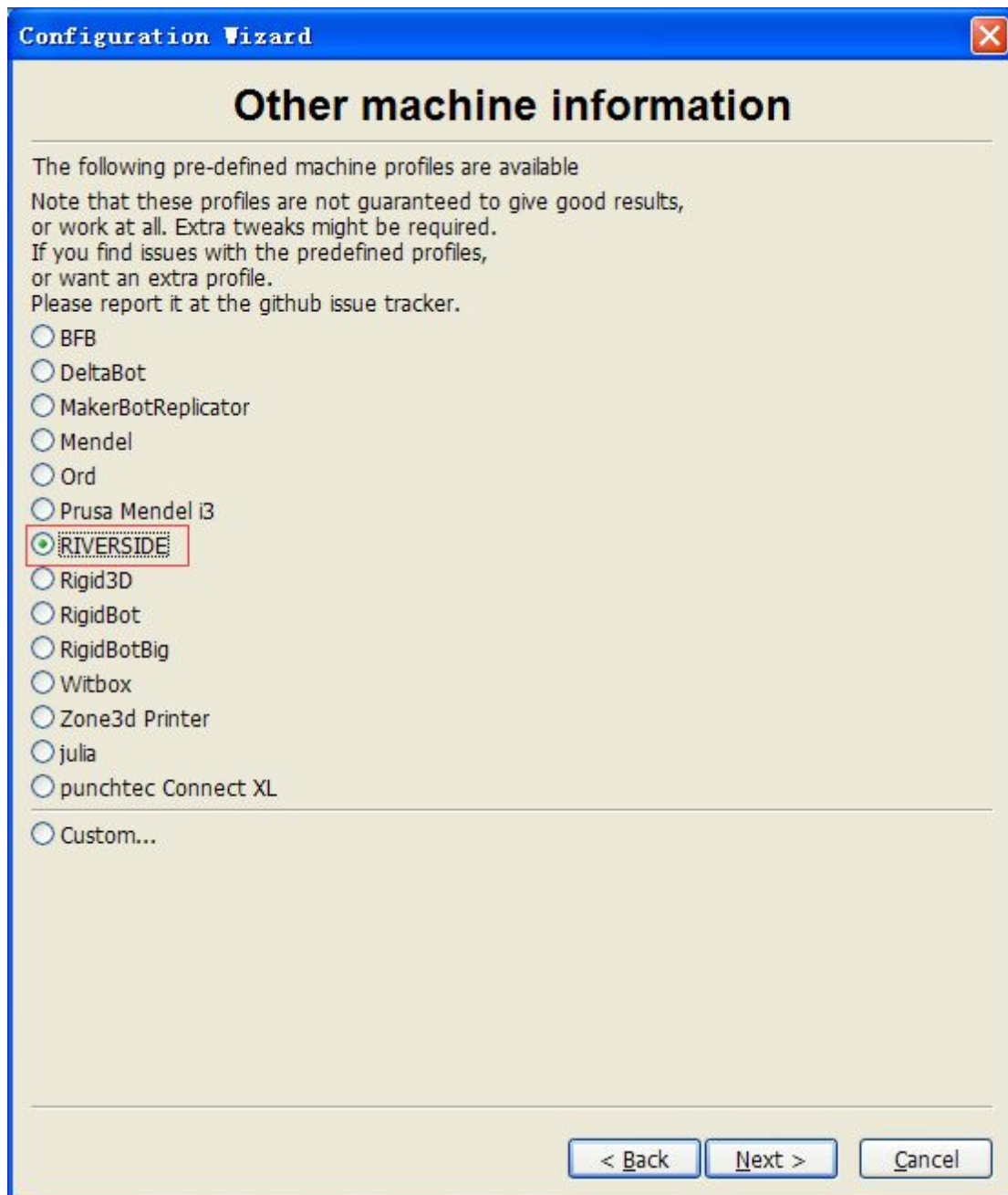
(1) Click "Next"



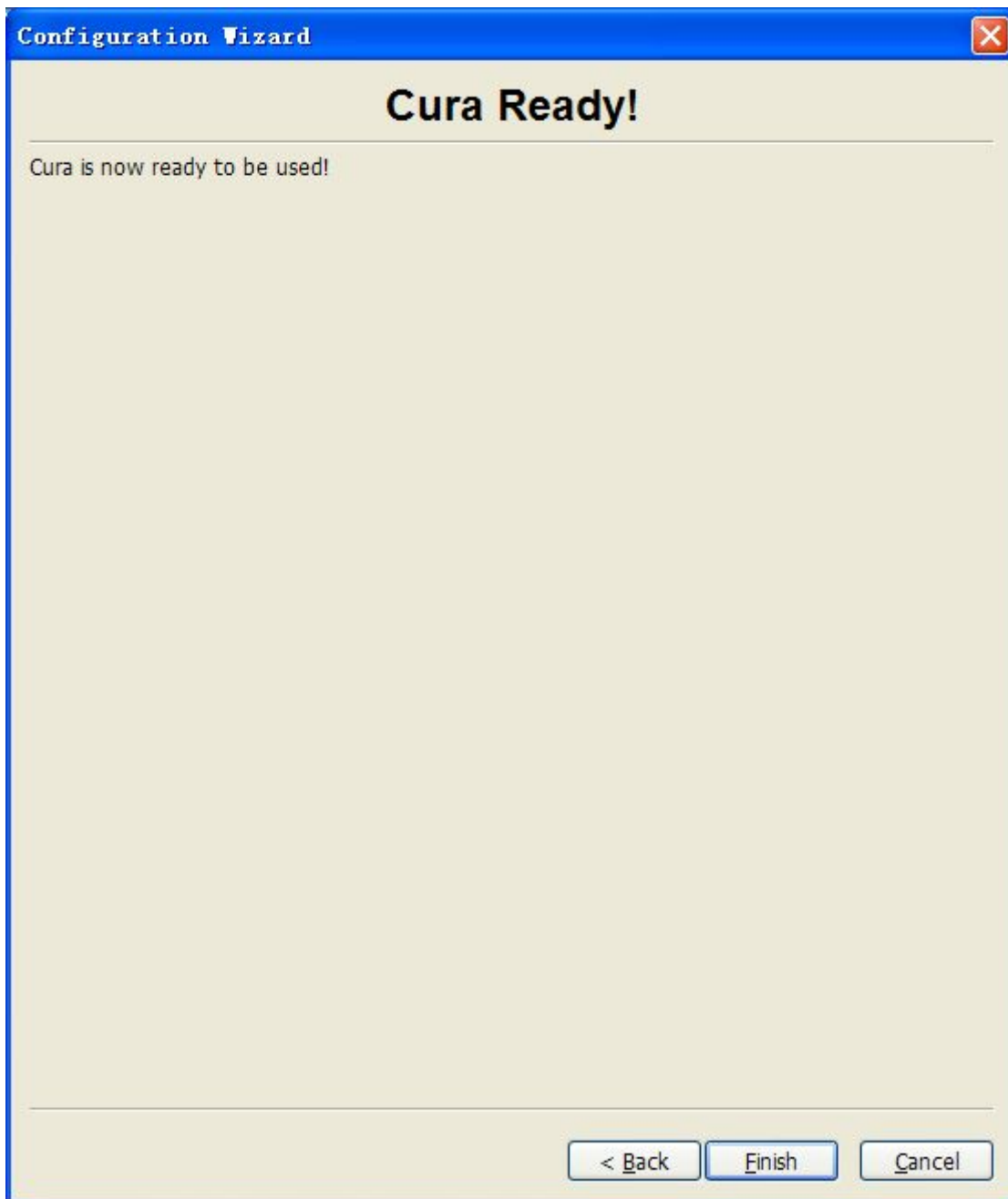
(2) Select "Other", then Click "Next"



(3) Select "RIVERSIDE", then Click "Next"




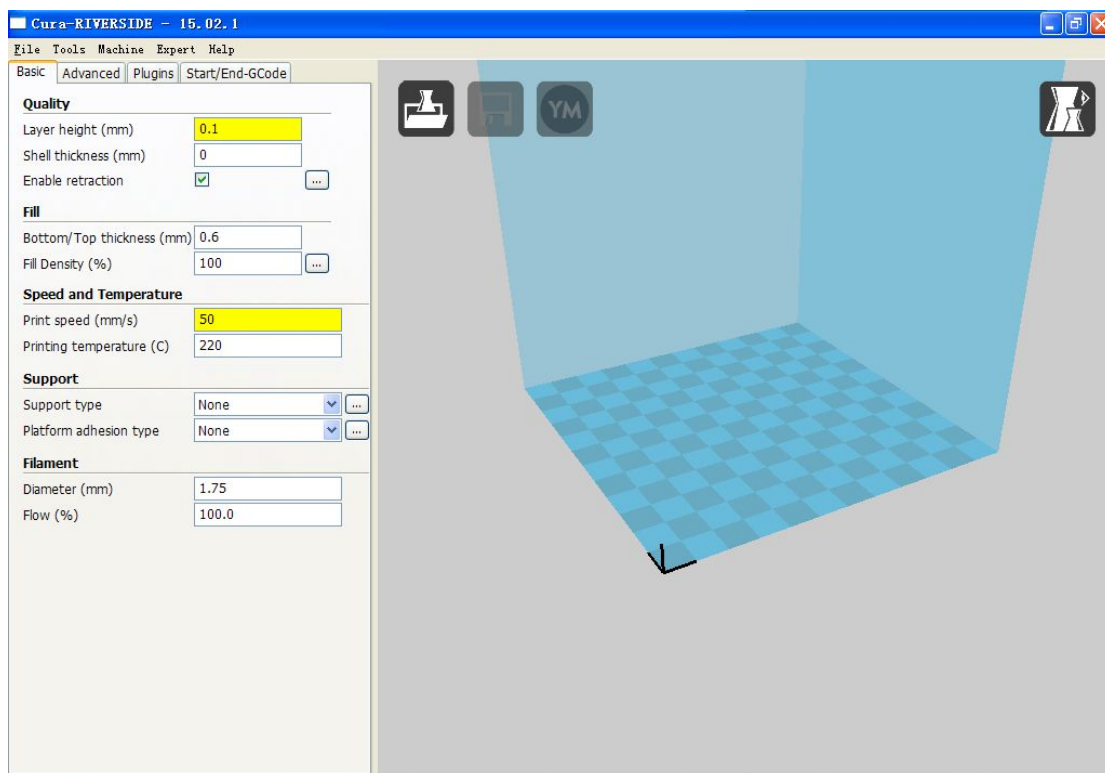
(4) Click “Finish”to complete the settings.



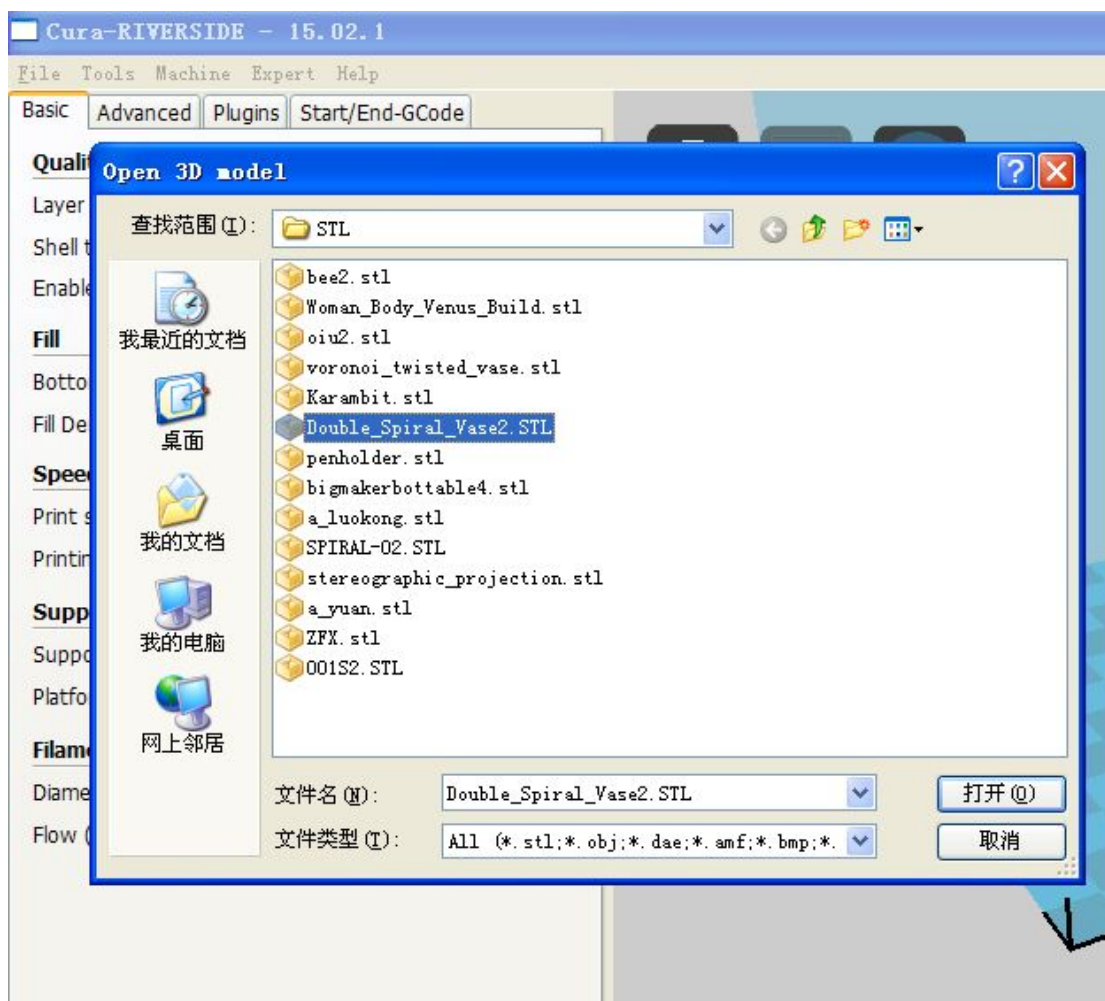
3.2.2 Introduction of Upper Computer Software Functions



1. Click the icon to start the software , then comes out the interface below.



2. Click “File---Load model file” to import files



3. When set the printer parameters has been setting, without having to repeat Settings. So after import the files , began to generate slice file automatically.



1) slicing the file



2) finish the slicing

After finish the slicing, can be used the middle of the icon to save it to a computer.

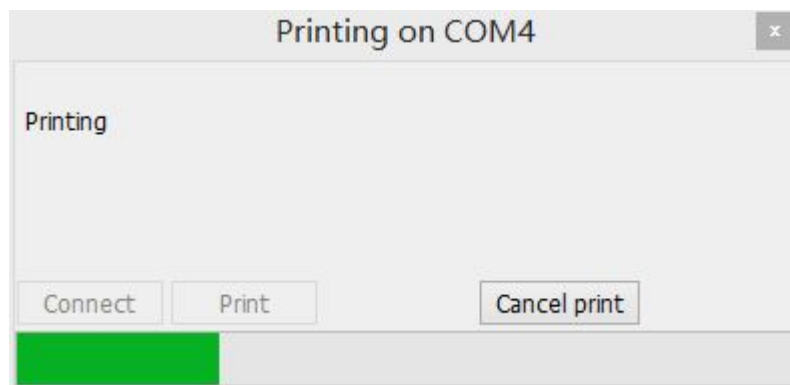


Also can use the icon  import the files.


4. If the connection has been established, it turn to



Then comes out the interface as below, click "Print" to start to print.



If the printer is OK, and the USB cable connection is correct, but the icon "Print with

USB"  is wrong, need to check if the serial port driver is OK. If the serial port driver is wrong, it needs to install the driver which one in the "C:\Program Files\Cura_15.02.1\drivers" again. If the serial port driver is right, need to unplug the serial port and restart the printer to try to reconnect again.

5. When finished, the completion of the above interface of the progress bar will display

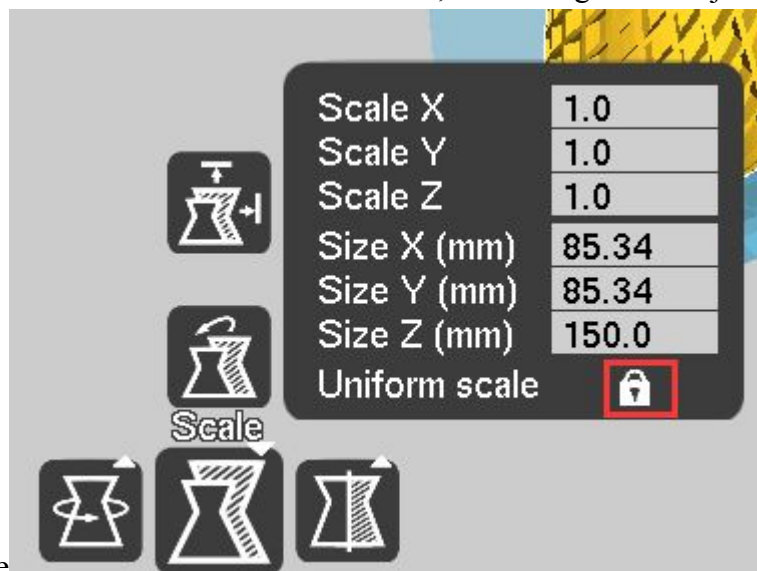
a complete the window of the blow finished,click  to close the printing window.

6. Other icons introduce

1)Select the printing object,will pop out the left below icon



(1) Rotate ,for rotating of the object;



(2) Scale ,for scaling of the object



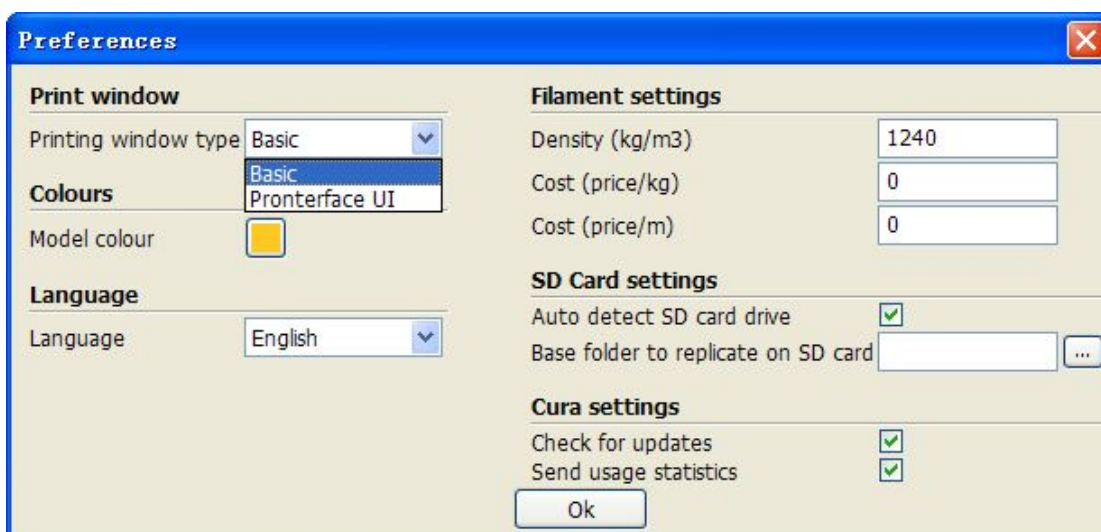
(3) Mirror, for reversing XYZ of the object

2) the top right corner icon

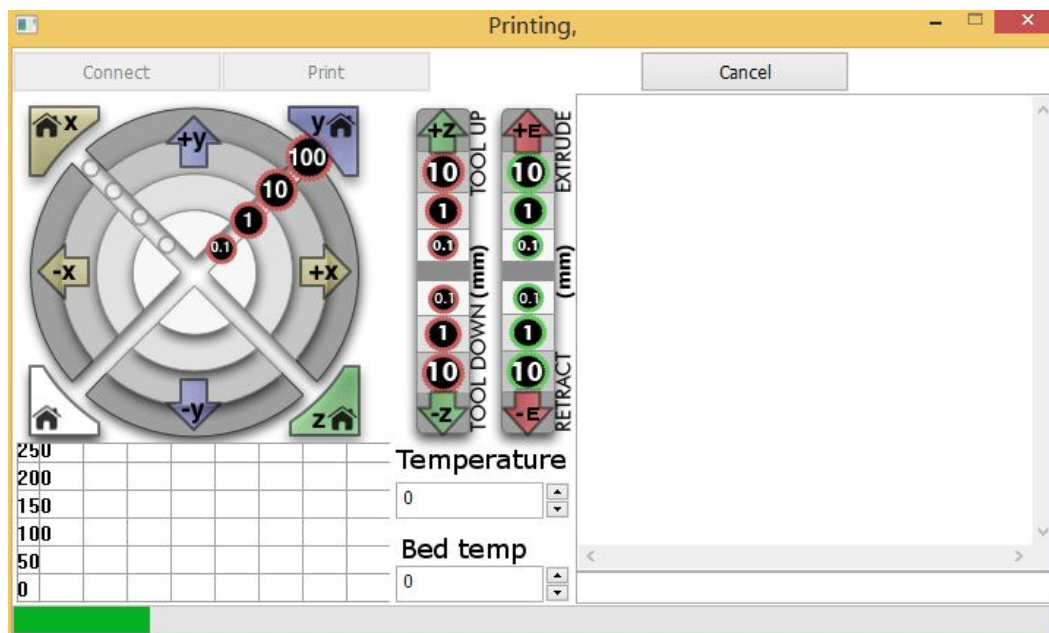


View mode

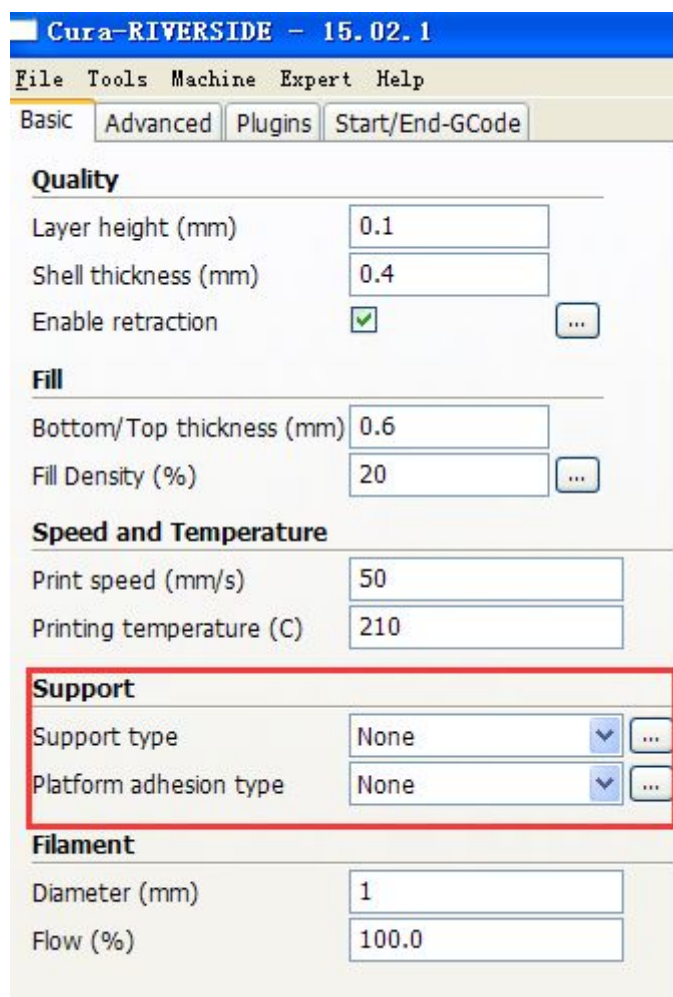
3) Open the “File---Preferences” to set the interface settings, the default is “Basic”.



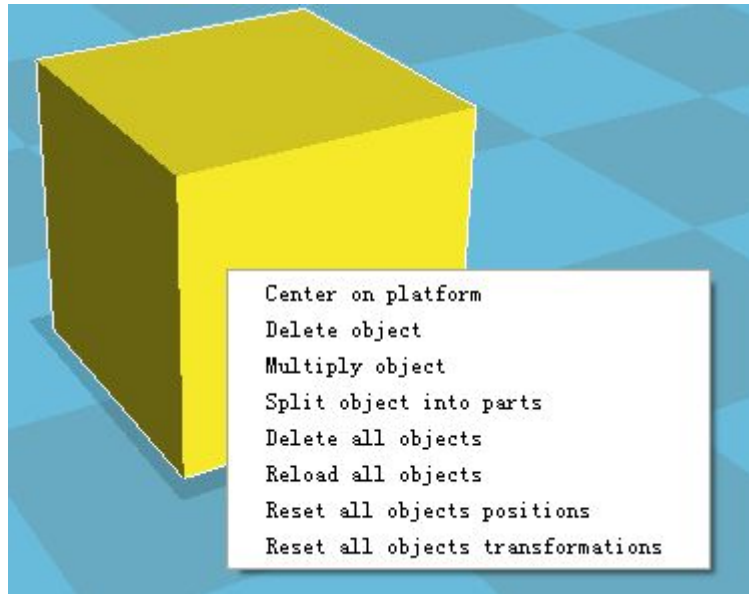
If select “Pronterface UI”, the interface as below.



4) Add the support

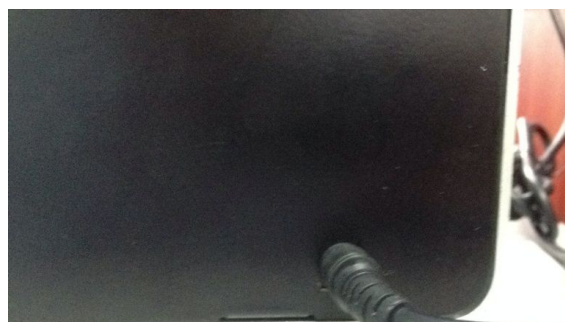


5) There are some shortcuts right click the mouse



3.2.3 Instructions on Lower Machine

1. Firstly, insert the power plug into the machine



2. Press the key switch to start the machine; the machine starts configuration settings and enters the ready state.



3. Having successfully getting online, click “Start to print” and pops out the interface below.



4. After the machine completes printing, the sucker and the platform will get reset. And the interface will resume the interface of “Ready to print”.

5. The model printed out adsorbs on the sucker. Remove the sucker and separate the model with a specialized shovel.

6. The separated model should be put in alcohol to cleanse the resin left. It can also be cleaned with a specialized ultrasonic cleaning machine which cleans more thoroughly.

Notes:

- 1.The USB cable connects the computer and the machine. If the connection is achieved, the “Connect” icon will change. Only when the connection is achieved can data transmission for printing be possible. If the connection fails, please check the USB cable connection and make sure the machine is on.
2. After getting online, the machine generates slicing data and starts to print. During printing, the USB cable must remain inserted to the machine, or the process shall suspend.
3. When a specialized ultrasonic cleaning machine is used, please set the cleaning time for 1-2 minutes.

4 Routine Maintenance

1. After printing, the printer should be stored in a place with little dust and covered with dustproof materials. Please be noted that should there be any damage to the printer caused by use of other manufactures' consumables, the printer shall not fall into the warranty scope.

2. It is advisable to renew lubricating oil and anti-corrosion grease once a month for the rails and screws.

3. Please do not turn off the electricity while the machine is printing, nor directly touch the conductor components with any metal object.

4. After the printing is completed, please remember to put the material tray back into the machine, and then put back the sucker. Finally, please lay down the radiation protection cover.

5. If the material tray needs replacing after printing, you must remove the sucker first before taking out the material tray. In this way, you can avoid the resin in the sucker dropping onto the surface of the built-in reflecting lens.

6. While the machine is cast in idle for long, the sucker should be cleansed thoroughly with anhydrous alcohol to prevent resin curing, lest the model printed out does not stick to the sucker.

5 Warranty Statements & License Agreement

5.1 Quality Assurance

We promise you on each CTC product. We employ strict standards for accessory processing, assembling and testing at CTC to ensure every printer comes out with qualified high quality.

5.2 Post-sale Service

1. Should there occur any quality problem within 30 days after the product arrives, we will pay the freight and change or repair the machine for free.

2. Should there occur any quality problem within 30-90 days after the product arrives, we will change or repair the machine for free. But the customer has to pay the freight.

3. If any quality problem occurs after 90 days since the arrival of the product, please join our corporate group with the number 102304634. We will provide free consulting services. Should there be any component exchange, the customer has to pay at the cost price and the freight.

Zhuhai CTC Electronics Co., Ltd does not recommend the use of any other branded consumables. If you want to achieve the most optimal 3D printing effects, please use OUR specialized printer consumables. Any maintenance or repair incurred by the use of non-CTC consumables will not be included in our scope of warranty.

5.3 Notes for Returning & Exchange

Basic requirements for returning & exchange: it should be guaranteed that the outside packaging of the product, the accessories and the manual are complete and intact. The product should remain what it was when it was sold out, so as not to affect the second sale. Should any of the conditions be not met, returning or exchange is rejected. If the customer needs to exchange, you can keep the gift. If you want to return the product, please mail us the product along with the gift.

Please carefully check the product when you receive it. If any quality problem is found, please take photos of the defected product and contact us within 5 days.

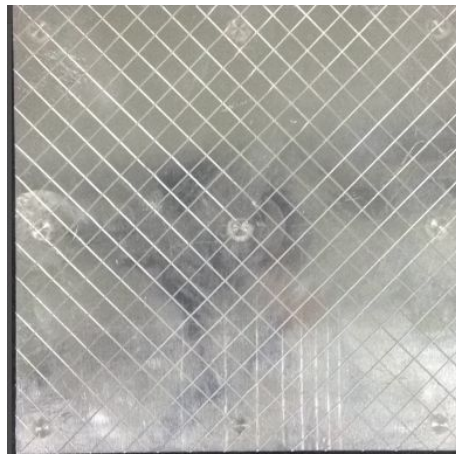
Please be noted that we will not offer you returning or exchange service under any of the following situations:

1. The outside packaging, accessories or manual of the product is missing;
2. The product has conspicuous stains or artificial destructions after purchase.
3. The gifts are not included in the scope of post-sale services.
4. If the customer uses non-CTC branded consumables without any artificial destruction, the damage is not included in our warranty scope.
5. No returning for products sold with invoices. If there is any quality problem, only exchange is acceptable.

Appendix 1 Common Trouble Shootings

1 The model printed out fails to stick on the sucker.

1. First, check the aluminium block on the sucker. Touch the aluminium block to feel if it is smooth. The rougher it feels, the stronger adhesive force the sucker has. If the block feels smooth, you can scrape grids on the sucker with a knife to strengthen the adhesive force (see Picture 1). While the machine is cast in idle for long, the sucker should be cleansed thoroughly with anhydrous alcohol to prevent resin curing, lest the model printed out does not stick to the sucker.



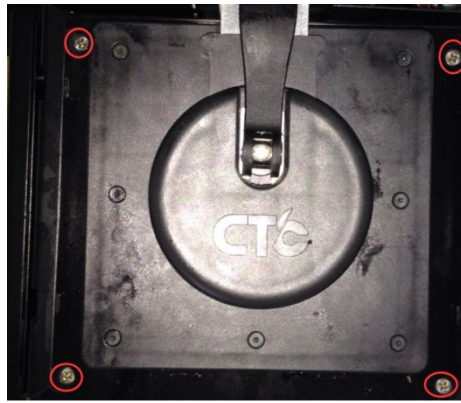
Picture 1 The aluminium block on the sucker

2. Check if the film in the resin tray is still there. The film can paste, which is helpful for the resin cured by laser sweep to stick on the sucker.

3. If the resin tray and the sucker are not horizontal, the model will not stick to the sucker, either.

(1)It is not necessary to disassemble the aluminum upper cover shell of the machine. Place the level panel on the level platform, send a file allowing the sucker to descend to the bottom. At this time the right side of the platform will rise and fall.

(2)Please cut off the electricity immediately while the right side of the platform rising to the right place for printing at the second time. Adjust the 4 screws in the level platform with a straight screwdriver to control the distance between the platform and the sucker (see Picture 2).



Picture 2 Adjust the 4 screws in the level platform

(3)When the smaller level panel can insert between the sucker and the platform, the distance will do (see Picture 3).



Picture 3 between the sucker and the platform

4.Check the 2 hooks below the level platform to see if they are hooked in the groove (Picture 4)



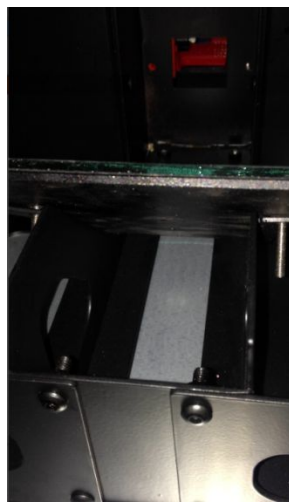
Picture 4 Check to confirm the position of the hooks

2 The model is placed in the middle of the software, but the printed object comes out from the side.

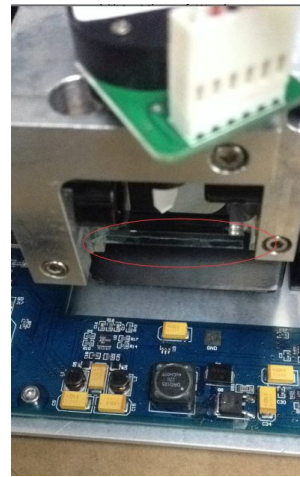
The reason may be the position deviation of the galvanometer. Please check the following two items first:

(1) Check the big lens below the resin tray to see if they remain flat on the base (see Picture 5).

(2) Check the small square lens below the galvanometer to see if there is any adhesive failure (see Picture 6).



Picture 5



Picture 6

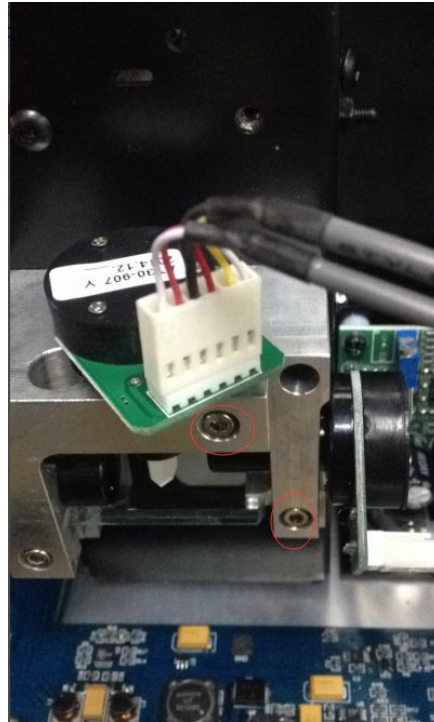
After confirming the above two items are not the problem, adjust the XY galvanometers to allow the laser to radiate towards the middle:

- (1) Twist out the screws in the back cover panel and remove the panel;
- (2) After the machine enters an energized state, upload a file of a 1cm square;
- (3) Remove the sucker and the resin tray, place a piece of clean white paper onto the level platform and start the machine to print;

(4) Adjust the positions of the galvanometers in accordance with the position of the square sprayed onto the paper (see Picture 7). The Y-axis galvanometer controls the left and right positions of the laser radiation onto the paper while the X-axis galvanometer controls the front and rear positions of the laser radiation. See Picture 8, loosen the screw and slightly adjust the galvanometer until it radiates the laser towards the middle, then screw up.



Picture 7 the Light-spot sprayed onto paper



Picture 8 Screw hole

Notes: When putting back the back cover panel, please keep in mind that the shortest screws should be used in the two screw holes in the panel. Or if the screw touches the motherboard, the latter will be short-circuited (See Picture 9).



Picture 9 Select suitable screws

3 Nothing comes out after printing or the laser light does not ray at the resin tray

1. Problem of laser device

Twist out the screws in the back cover panel of the machine; remove the panel, the sucker and the resin tray; place a piece of white paper onto the level platform, upload a file for printing and observe if there is any laser rayed out. If there is, the laser device is fault-free.

2. Position deviation of the X-axis or Y-axis galvanometer (Please refer to Problem 2

for solutions)

4 The size of the model printed out does not match the actual size.

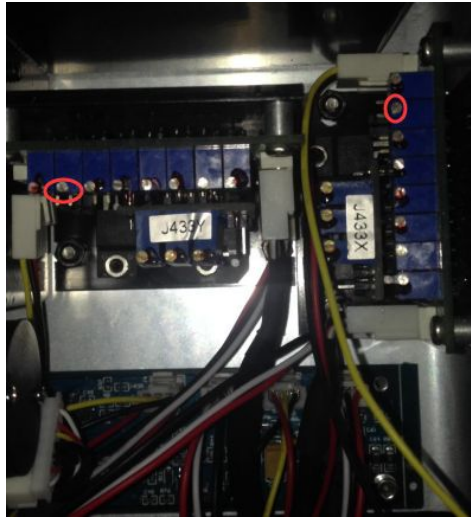
Compare the size of a 1cm cube on white paper and that of a 1cm cube rayed by laser onto paper, to determine how to adjust the galvanometers:

- (1) After the machine enters an energized state, upload a file of a 1cm square;
- (2) Remove the sucker and the resin tray, print a square with side length of 1cm with a 2D printer. Place the paper onto the level platform and start the machine to print;
- (3) Observe to see if the size of 1cm rayed by laser coincides with the square on the paper;
- (4) If the rayed square is either larger or smaller than the square drawn on the paper, the user can use a straight screwdriver to adjust the sizes of the galvanometers (see Picture 10). Please remember to adjust clockwise to reduce the size and counterclockwise to amplify.



Picture 10 Adjust the positions of galvanometers 1

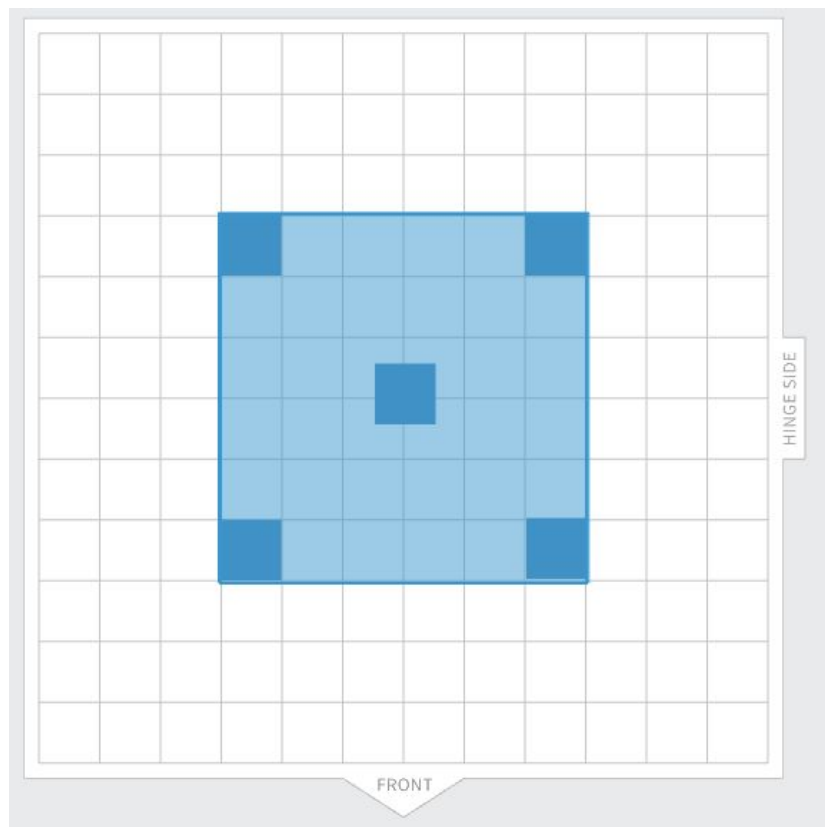
If the galvanometers are of another type, the directions reverse—adjust clockwise to amplify the size and counterclockwise to reduce. The position adjustment may be different (see Picture 11). Adjust the sizes while observing.



Picture 11 Adjust the positions of galvanometers 2

(5) The Y-axis galvanometer controls the left and right positions of the laser radiation onto the paper while the X-axis galvanometer controls the front and rear positions of the laser radiation.

Notes: (see Picture 12) If the model printed out is within the shaded area, a standard size can be guaranteed. If the model sizes outreach the shaded area, the printed model sizes will pose slight differences as the model sizes enlarge.



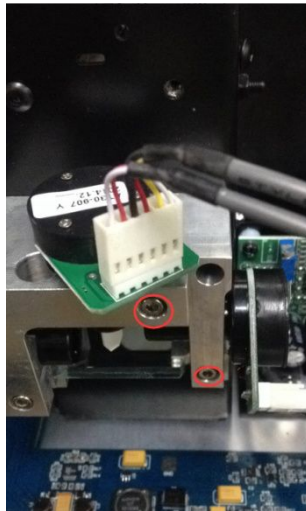
Picture 12 Printing sizes

5 The model printed out has burr or cloak

The reason may be lens dust or scratch.

The printer has totally 4 lenses, namely, the X-axis galvanometer, the Y-axis galvanometer, the smaller lens and the bigger lens. When the lenses have dust or are scratched, the user can clean them with isopropanol or ethanol in high concentration (above 99.7%) along with clean cloth. Please remember not to leave any fingerprints on the lens surfaces.

For smaller lens, you can use cotton swaps to clean since the area needs cleaning is quite small. If you want to clean the lenses of XY-axis galvanometers, you can screw off the screws locking the galvanometers (see Picture 13), remove the galvanometers, clean them and put them back into the aluminum part. Then you can refer to the solutions for Problem 2 to adjust the positions of the galvanometers.



Picture 13 Screws of galvanometers

Notes: While wiping the lenses, you must wash them in one direction and wipe with clean cloth in one direction. Please do not wipe back and forth which will sharpen the scratch.

6 Other problems

1. The printer suspends abruptly while printing—check to see if the magnetic sensor contacts well. It locates above the key switch.
2. The reflecting lens is contaminated with glue or debris—clean it with isopropanol or

ethanol in high concentration (above 99.7%) along with clean cloth. Please remember not to leave any scratch or debris on the lens surfaces.

3. An expected round item comes out oval—slightly adjust the angle of the high-speed galvanometer in accordance with the extent of the ellipse.

4. The material tray does not automatically rise and fall—check the screw top of the reversible motor on the right connecting the material tray, to see if the fixed aluminum cap at the screw top has loosen or fallen off. Or check around the material tray holder to see if there is any trail of being stuck.

5. Z axis does not stop after returning to the top

- (1) Check if the connection wire of the light-sensitive stopper is loosened;
- (2) Check if the fixed screws in the light-sensitive stopper are loosened;
- (3) Check if the motherboard limit switch line is properly inserted.